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Conference Abstract

Essential Biodiversity for Understanding Change

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Abstract

The biodiversity crisis we are experiencing requires more than ever the establishment of an observation and monitoring system to help us understand where we have the greatest problems, to inform actions to help halt and reverse biodiversity loss in those places, and to anticipate the impact of our future actions. The Essential Biodiversity Variable framework concept (EBV; Pereira et al. 2013), was conceptually conceived to provide an analytical framework for biodiversity monitoring, which includes functional, structural, and compositional aspects at different levels of organization, from genes to ecosystems, which, as opposed to reductionist approaches, tries to think of biodiversity from a holistic and systemic viewpoint. After some years of working on refining this concept (e.g., Proença et al. 2017, Kissling et al. 2017, Jetz et al. 2019), in collaboration with the Group on Earth Observations Biodiversity Observation Networks (GEO BON) user community, we have taken the next step, which is precisely to work on grounding this concept through a proposed structure, standard, and tools, which facilitates interoperability and the process of sharing and accessing this information. Our vision for boosting the adoption and use of the EBV framework, named for the different dimensions of the planetary life system that it is intended to capture, is to facilitate access to multiple EBV data products organized under a consistent data structure and with standardized annotation across EBV classes. We propose to leverage the Network Common Data Form (NetCDF) data structure in combination with the Attribute Convention for Data Discovery (ACDD) terms and the Ecological Metadata Language (EML) syntax and adapt them to describe hierarchically organized, spatially explicit, gridded data on biodiversity observations, model predictions,

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and scenarios using a combination of a web portal and an R package for publication and exploration. We believe that this data structure metadata and supporting tools, initially tested using diverse biodiversity datasets that cover the full scope of the Essential Biodiversity Variables framework, will allow us to better serve the community of users interested in different aspects of global change, to be able to ask questions framed in specific times and spaces in order to obtain, analyze, and visualize the time series registered somewhere on the planet and gain knowledge and insights that will inform decision-making and help us drive and direct development trajectories towards a more sustainable future.

Keywords

EBVs, biodiversity indicators, data cube, trends

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Conflicts of interest

All authors declare that they have no conflicts of interest.

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